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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,821	10/29/2003	Robert Cochran	200311026-1	9535

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EXAMINER

VY, HUNG T

ART UNIT PAPER NUMBER

2163

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/697,821

Applicant(s)

COCHRAN ET AL.

Examiner

Hung T. Vy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. As of entry of the response filed on 09/18/2006, claims 1-25 are pending in this application. Upon reconsideration, the rejection of claims 1-25 by Matsunami et al. mailed 04/18/2006 is hereby withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Matsunami et al. (U.S. Patent No. 6,810,462).

**Claim Rejections - 35 USC 101**

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

Claims 1-25 are rejected under 35 U.S.C. 101 because the claims are directed to a non-statutory subject matter, specifically, the claims are not directed towards the final result that is "useful, tangible and concrete". (See State Street, 149 F.3d at 1373-74 USPQ2d at 1601-02).

According to the New Guidelines of October 26, 2005, which states that "A claim limited to a machine or manufacture, which has a practical application, is statutory. In most cases a claim to a specific machine or manufacture will have a practical application. See Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557)... a specific machine to produce a useful, concrete, and tangible result and State Street, 149 F.3d at 1373-74 USPQ2d at 1601-02).

(Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility  
<<http://rs6.net/tn.jsp?t=mdmd7pbab.0.kbg76pbab.p9qiiibab.7440&p=http%3A%2F%2Fwww.uspto.gov%2Fweb%2Foffices%2Fpac%2Fdapp%2Fopla%2Fpreognotice%2Fguid>

elines101\_20051026.pdf> )

Examiner requests Applicant to include in Applicant's claimed limitations (in all the claims) the following:

What is the practical application?

What is the result?

What is final result that is concrete, useful and tangible?

Because the "practical application, result, concrete, useful and tangible"

limitations are not claimed in Applicant's claims, Examiner believes that the above listed claims are nonstatutory.

Further claim 10, the method *of managing information storage in a storage system* does not produce a useful, concrete and tangible result as set forth in 2106 (IV)(B)(2)(b)(ii), e.g., *selectively controlling information access to the hierarchy of storage devices within the storage array* is not a tangible result because the returned default filed value is not being used in the method for *managing information storage in a storage system* as recited in the preamble. The claim invention does not produce a useful result because the process does not meet the requirement as recited in the preamble, e.g. *managing information storage in a storage system*.

Further more, claims 24 recites an article of manufacture, however the components of an article of manufacture are merely software per se. A system claims much recite physical structure thus enabling it to be properly categorized in one of the statutory categories of invention. Since the components of the an article of manufacture claims 24 are software per se and do not contain any physical components, an article of manufacture cannot be categorized in one of the statutory categories of invention and is thus nonstatutory.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 and 10-13, 18-22 and 24-25 are rejected under 35 U. S. C. § 102 (e) as being anticipated by Matsunami et al. (U.S. patent No. 6,810,462).

Regarding claims 1, 10, 18 and 24-25, Matsunami et al. discloses a storage system and a method of managing information storage in a storage system comprising: a storage array containing a plurality of storage devices of at least three types (CHN0, CHN1, CHN2, CHN3, 13, 14 and 1700 (FC disk Pool 0)) and having a respective class hierarchy (See fig. 1 and 8 and see column 7, line 1+, and column 10, line 37+); and a controller (11) coupled to the storage device hierarchy (See fig. 1 and 8 and see column 7, line 1+, and column 10, line 37+) and capable of executing an hierarchical storage management capability that selectively controls access to the hierarchy of storage devices (See fig. 1-9 and see column 7, line 1+).

With respect to claims 2, and 11, Matsunami et al. discloses the storage array contains a hierarchy of storage devices of at least three types and having a respective performance hierarchy (see column 7, line 1+).

With respect to claims 3, 12 and 21, Matsunami et al. discloses the storage array contains a hierarchy of storage devices of at least three types 13, 14, 1110, 1700, 1750, 1751, 175n and having a respective economic or cost hierarchy (see column 7, line 1+ and fig. 9).

With respect to claim 4, Matsunami et al. discloses a solid-state cache (14) and shared memory (15) supplying storage for a level of hierarchical storage for a level of hierarchical storage (see fig. 1).

With respect to claim 5, Matsunami et al. discloses it is inherent that Matsunami et al. discloses relatively higher performance Fibre Channel (FC) storage device supplying storage for a level of hierarchical storage because Matsunami et al. discloses the fibre channel (FC) adapter 1110 for connect with storage device (see fig. 1).

With respect to claim 13, it is inherent that Matsunami et al. discloses at least a volatile-shared memory, a relatively higher performance non-volatile storage, and a relatively lower performance non-volatile storage because Matsunami et al. discloses the cache memory controller (16) and cache (14) and share memory (15). Further, cache memory is always Ram (volatile storage) that holds the temporary storage data waiting for next excused of processor.

With respect to claim 22, Matsunami et al. discloses a cabinet enclosing (1) the disk array and the controller (see fig. 1).

With respect to claims 19-20, Matsunami et al. discloses a cache memory (14) coupled to the controller (15) and operable as an additional storage in the class hierarchy (see fig. 1).

### **Claim Rejections - 35 U.S.C. § 103**

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

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to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6-9, 14-17 and 23 are rejected under 35 U.S.C. 103 (a) as being

unpatentable over Matsunami et al. (U.S. patent No. 6,810,462) in view of Michael T.

Lobue (Michael T. Lob., Surveying Today's Most Popular Storage Interfaces, 12-2002, IEEE, 0018-9162, page 48-55).

Regarding claims 6-9, 14-17 and 23, Matsunami et al. discloses all limitations of claimed invention recited in claims 1, 10 and 18 except for lower performance serial AT-attached (SATA) storage devices supplying storage for a level of hierarchical storage. However, Michael T. Lobue discloses the serial AT-attached (SATA) storage devices (see page 53). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Matsunami et al.'s system to use the SATA in order to improve the system storage and a hybrid storage allows a system to achieve greater economies and storage densities for the stated purpose has been well known in the art as evidenced by teaching Michael T. Lobue (see page 53).

### **Conclusion**

5. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

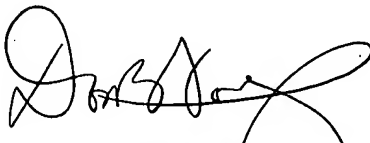
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Vy whose telephone number is (571) 272-1954. The examiner can normally be reached on Monday-Friday 8:30 am - 5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax numbers for the

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organization where this application or proceeding is assigned are (571) 273-8300 for regular communications.

Information regarding the status of an application may be obtained from the patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either private Pair or Public Pair. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hung T. Vy  
Art Unit 2821  
October 29, 2006.



DON WONG  
SUPERVISORY PATENT EXAMINER  
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